



The Intel® 915P Express Chipset, with high-bandwidth interfaces and PCI Express* Graphics.



Intel 915P Express Chipset-based platforms offer exceptional versatility and increased performance for the convergence of digital entertainment and an enhanced digital home experience, as well as enabling new levels of business collaboration.

The Intel® 915P Express Chipset.

Platforms based on the Intel® 915P Express Chipset and Intel® Pentium® 4 processor supporting Hyper-Threading Technology¹ deliver innovative features and new benefits for both home and business users. The Intel 915P Express Chipset was designed to support the capabilities of Hyper-Threading Technology, adding intelligence to help manage and prioritize multiple threads received from the processor. An HT Technology-enabled platform can improve system performance and responsiveness.

The Intel 915P Express Chipset, based on a new architecture, innovative technologies and high-bandwidth interfaces, is the newest discrete graphics chipset for the Intel Pentium 4 processor family. It was designed to enable the convergence of digital entertainment, as well as enhance bandwidth-intensive applications, such as audio, video, photography, and gaming. It also offers corporate users a high-performance stable platform that enables new levels of business collaboration.

This highly flexible and scalable solution meets a broad range of demanding computing needs. The Intel 915P Express Chipset can deliver maximum system performance through its high-bandwidth interfaces, such as dual-channel DDR2 main memory, 800-MHz system bus, PCI Express* Graphics and I/O architecture, and Hi-Speed USB 2.0 connectivity. PCI Express architecture enables increased bidirectional bandwidth to the graphics and I/O interfaces. With up to 500 MB/s concurrent data transfer rate, it delivers more than three and a half times the I/O bandwidth of traditional PCI architecture. And with up to 4 GB/s per direction PCI Express Graphics capability, it provides more than three and a half times the graphics bandwidth of previous generation discrete graphics controllers.

To support the faster memory, increased graphics requirements, and I/O bandwidth, the Intel 915P Express Chipset incorporates a new Memory Controller Hub (MCH) backbone architecture. This new design includes wider internal data buses that support dual-channel DDR2 memory technology at 533 MHz or up to 8.5 GB/s of peak memory bandwidth, for improved platform performance. The new architecture also supports both asynchronous and true isochronous data traffic, with dedicated internal pipelines and specialized arbitration. This enables the Intel 915P Express Chipset to take full advantage of the performance of these new high-speed interfaces.

A high speed serial point-to-point bus architecture, known as Direct Media Interface, links the MCH to the sixth-generation Intel® I/O Controller Hub (ICH6). This new bus delivers up to 2 GB/s concurrent bandwidth, compared with up to 266-MB/s for the previous Intel® hub architecture. Intel 915P Express Chipset-based platforms also enable system design flexibility, with support for both dual-channel DDR and DDR2 memory, discrete PCI Express graphics, and additional platform capabilities via flexible ICH6 options.

The ICH6 component includes several enhancements and new capabilities, and enables system configuration options for digital home usage and business collaboration. It integrates the Intel® High Definition Audio (Intel® HD Audio) technology, featuring eight independent DMA audio engines that support multiple simultaneous and separate audio input and output streams. This enables high quality integrated audio that rivals the performance of high end discrete solutions. Intel HD Audio is also capable of supporting major consumer entertainment industry formats, such

as 7.1 surround sound, Dolby Digital*, and DTS*. An integrated Serial ATA (SATA) controller supports 4 SATA ports, each providing up to 1.5 GB/s (150 MB/s) transfer rates for SATA optical devices or hard drives. And the Advanced Host Controller Interface (AHCI) provides native hot plug and boosts performance with Native Command Queuing (NCQ) for faster boot times and file transfers. The Intel® ICH6R component elevates SATA storage performance to the next level with Intel® Matrix Storage Technology. Enhanced RAID support allows critical data to be stored on one array that is designed for high reliability, while performance intensive applications like games can reside on separate array designed for maximum performance.

Intel 915P Express Chipset features deliver a compelling solution for both consumer and corporate market segments:

- 800-MHz FSB enables support for today's high-performance Intel Pentium 4 processors.
- Optimized for the Intel Pentium 4 Processor with HT Technology, to enable improved system performance and responsiveness.
- Flexible memory support, with dual-channel DDR2 533/DDR2 400 or DDR400/DDR333 memory.
- PCI Express up to 4 GB/s per direction for graphics bandwidth and up to 500 MB/s concurrent data transfers for I/O.
- Intel Matrix Storage Technology, with integrated Raid 0 and Raid 1 capabilities using the latest SATA interface, for accelerated disk I/O performance.
- Intel HD Audio technology's eight independent DMA audio engines can enable multiple separate, simultaneous audio experiences.



F E A T U R E S		B E N E F I T S	
800-/533-MHz System Bus		Supports platform longevity with high-performance Intel processor frequencies and delivers greater system bandwidth.	
Hyper-Threading Technology Support		Increases system responsiveness and performance.	
LGA775 Processor Package		Supports the highest performance Intel desktop processors on the LGA775 processor package.	
PCI Express*		Designed for bandwidth-intensive applications. PCI Express x16 graphics delivers up to 4 GB/s per direction, more than three and a half times the bandwidth of previous high-end discrete graphics solutions. PCI Express x1 I/O offers 500 MB/s concurrently, over three and a half times the bandwidth of traditional PCI architecture.	
Dual-channel DDR2 or DDR		Flexible memory technology allows a full spectrum of DDR2 and DDR usage, from highest performance to more cost-effective systems.	
Direct Media Interface (DMI)		Dedicated data paths deliver up to 2.0 GB/s concurrent bandwidth compared to 266 MB/s bandwidth for previous generation Intel® hub architecture, to support more I/O intensive applications.	
Intel® High Definition Audio		Support for new consumer electronics audio formats, such as Dolby* Digital, DTS* and multiple streams, enables new PC uses.	
Integrated Serial ATA Controller		Facilitates high-speed storage and data transfers at up to 150 MB/s for each of 4 ports. Allows easier hard drive upgrades and expansion for new SATA optical drives with 4 SATA/150 ports.	
Ultra ATA/100		Takes advantage of the existing industry HDD and optical drive interfaces.	
Integrated Hi-Speed USB 2.0		Eight ports offer up to 40X greater bandwidth over USB 1.1 for high-speed I/O peripherals, such as digital video cameras.	

P R O D U C T		P A C K A G E	
Intel® Pentium® 4 Processor		775 Land Grid Array (LGA)	
Intel® 82915P GMCH		1210 Flip Chip Ball Grid Array (FCBGA)	
Intel® ICH6/ICH6R		609 Micro Ball Grid Array (mBGA)	
I N T E L A C C E S S			
Developer's Site		developer.intel.com	
Motherboard Selector Guide		www.intel.com/go/boards	
Other Intel Support:		support.intel.com	
Intel Literature Center		(800) 548-4725 7 a.m. to 7 p.m. CST (U.S. and Canada) International locations please contact your local sales office.	
General Information Hotline		(800) 628-8686 or (916) 356-3104 5 a.m. to 5 p.m. PST	
For more information, visit the Intel Web site		www.intel.com/design/chipsets	

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¹ Look for systems with the Intel® Pentium® 4 Processor with HT Technology logo and also including an Intel® 925, 915, or 910 Express Chipset (see the product spec sheet or ask your salesperson). Performance and functionality will vary depending on (i) the specific hardware and software you use and (ii) the feature enabling/system configuration by your system vendor. See www.intel.com/products/ht/hyperthreading_more.htm for information on HT Technology or consult your system vendor for more information.

The Intel® Pentium® 4 processor and Intel® 915P Express Chipset may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata for commercially available products are available on request. Intel Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in an Intel® product. Information contained herein supersedes previously published specifications on these devices from Intel.

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